

Amendments to the Claims

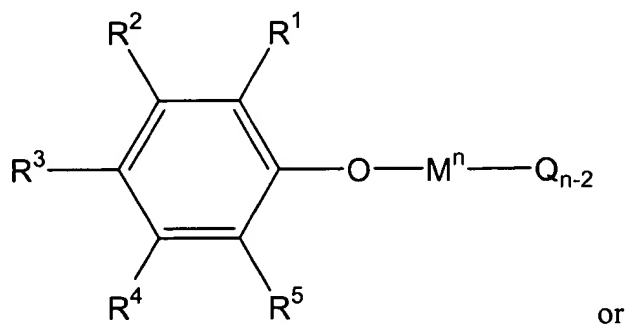
This listing of claims will replace all prior versions, and listings, of claims in the application:

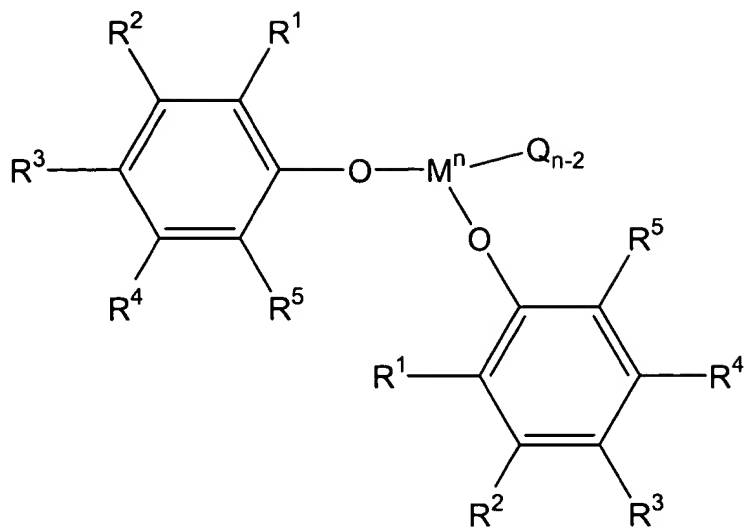
Listing of Claims:

1-23. (Previously Cancelled)

24. (Currently amended) A supported catalyst system comprising an iminophenoxide Group 4 catalyst compound, a bulky ligand metallocene catalyst compound, and a supported an activator, each component supported on a metal or metalloid oxide comprising surface hydroxyl groups, wherein:

a) the iminophenoxide Group 4 catalyst compound is represented by the formulae:





where R¹ to R⁴ are independently hydrogen, C₁ to C₁₀ heteroatom containing groups, or C₁ to C₂₀ alkyl groups;

R⁵ is an imine group bound to M;

O is oxygen;

M is a Group 4 metal;

n is the valence state of M; and

Q is an anionic ligand; and wherein

- b) the supported activator is a carrier material combined with an activator, the activator represented by the formula:



wherein each R is independently an alkyl group or a group represented by the formula ArHal, where ArHal is a halogenated C₆ aromatic or higher carbon number polycyclic aromatic hydrocarbon or aromatic ring assembly; and n is 3.

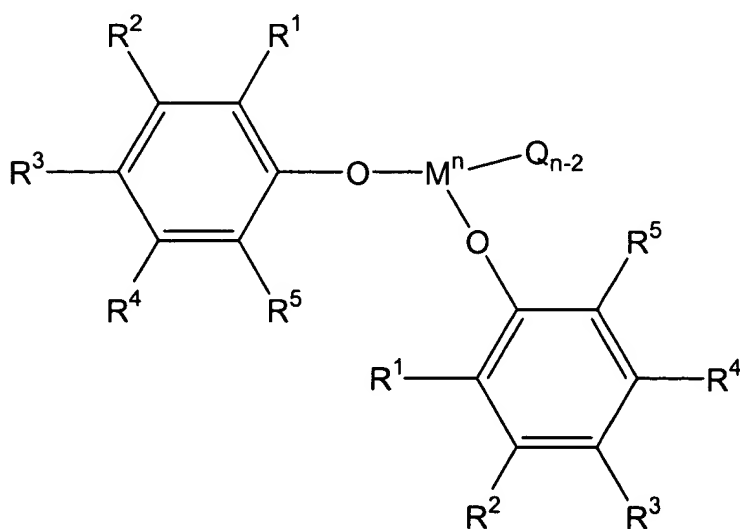
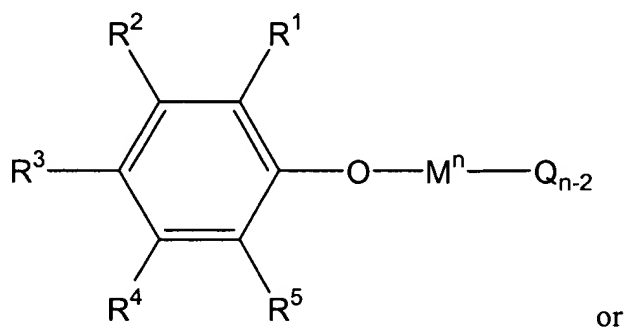
25. (Previously amended) The supported catalyst system of Claim 24, wherein the iminophenoxide Group 4 catalyst compound is selected from the group consisting of:

bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-ethyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*t*-butyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-hexyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-phenyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dichloride;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dipivalate;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)titanium(IV) dipivalate;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) di(bis(dimethylamide));
bis(*N*-*iso*-propyl-3,5-di-*t*-amylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-*t*-octylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)titanium(IV)
dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)hafnium(IV)
dibenzyl;
bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dichloride;
bis(*N*-hexyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-phenyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1'-methylcyclohexyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-benzyl-3-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-triphenylmethylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-*iso*-propyl-3,5-di-trimethylsilylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3-(phenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-(2',6'-di-*iso*-propylphenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-(2',6'-di-phenylphenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-*t*-butyl-5-methoxysalicylimino)zirconium(IV) dibenzyl; and
derivatives thereof.

26. (Previously added) The supported catalyst system of Claim 24, wherein the activator is tris(pentafluorophenyl)aluminum.
27. (Previously added) The supported catalyst system of Claim 24, wherein the support material contains surface hydroxyl groups.
28. (Previously added) The supported catalyst system of Claim 24, wherein the aluminum atom of the activator is covalently bonded to the support material.
29. (Previously amended) The supported catalyst system of Claim 24, wherein the iminophenoxide Group 4 catalyst compound is bis(4,6-di-*t*-butyl-2-*iso*-butyliminophenoxy)zirconium dibenzyl, bis(4,6-di-*t*-butyl-2-benzyliminophenoxy)zirconium dibenzyl, or derivatives thereof.
30. (Previously Cancelled)
31. (Currently amended) A method of preparing a catalyst system comprising:
 - a) contacting an aluminum containing Lewis acid activator with a carrier comprising surface hydroxyl groups in a hydrocarbon diluent to form a supported activator; wherein the supported activator comprises an activator covalently bound to the carrier;

- b) contacting the supported activator with an iminophenoxide Group 4 catalyst compound and a bulky ligand metallocene catalyst compound to form the catalyst system;
32. (Previously added) The method of Claim 31, wherein the activator is added in a molar excess relative to the amount of surface hydroxyl groups of the carrier.
33. (Previously added) The method of Claim 31, wherein the carrier is calcined to up to 800°C prior to contacting with the activator.
34. (Previously amended) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is represented by the formulae:



where R^1 to R^4 are independently hydrogen, C_1 to C_{10} heteroatom containing groups, or C_1 to C_{20} alkyl groups;

R^5 is an imine group bound to M;

O is oxygen;

M is a Group 4 metal;

n is the valence state of M; and

Q is an anionic ligand.

35. (Previously amended) The method of Claim 31, wherein the supported activator is a carrier material combined with an activator, the activator represented by the formula:



wherein each R is independently an alkyl group or a group represented by the formula ArHal, where ArHal is a halogenated C_6 aromatic or higher carbon number polycyclic aromatic hydrocarbon or aromatic ring assembly; and n is 3.

36. (Previously amended) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is selected from the group consisting of:

bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-ethyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-*iso*-propyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-*t*-butyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-hexyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-phenyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-methyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dibenzyl;

bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dichloride;

bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) dipivalate;

bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)titanium(IV) dipivalate;
bis(*N*-benzyl-3,5-di-*t*-butylsalicylimino)zirconium(IV) di(bis(dimethylamide));
bis(*N*-*iso*-propyl-3,5-di-*t*-amylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-*t*-octylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)titanium(IV)
dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)hafnium(IV)
dibenzyl;
bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-*iso*-butyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV)
dichloride;
bis(*N*-hexyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-phenyl-3,5-di-(1',1'-dimethylbenzyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-(1'-methylcyclohexyl)salicylimino)zirconium(IV)
dibenzyl;
bis(*N*-benzyl-3-*t*-butylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-triphenylmethylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3,5-di-trimethylsilylsalicylimino)zirconium(IV) dibenzyl;
bis(*N*-*iso*-propyl-3-(phenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-(2',6'-di-*iso*-propylphenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-(2',6'-di-phenylphenyl)salicylimino)zirconium(IV) dibenzyl;
bis(*N*-benzyl-3-*t*-butyl-5-methoxysalicylimino)zirconium(IV) dibenzyl; and
derivatives thereof.

37. (Previously added) The method of Claim 31, wherein the activator is tris(pentafluorophenyl)aluminum.

38. (Previously added) The method of Claim 31, wherein the support material contains surface hydroxyl groups.
39. (Previously added) The method of Claim 31, wherein the aluminum atom of the activator is covalently bonded to the support material to form the supported activator.
40. (Previously amended) The method of Claim 31, wherein the iminophenoxide Group 4 catalyst compound is bis(4,6-di-t-butyl-2-iso-butyliminophenoxy)zirconium dibenzyl, bis(4,6-di-t-butyl-2-benzyliminophenoxy)zirconium dibenzyl, or derivatives thereof.
41. (Previously Cancelled)